Remarks:

Reconsideration of the application is respectfully requested.

Claims 1 - 3 are presently pending in the application. Claims 1 - 3 have been amended to even more clearly point out the claimed invention.

In item 7 of the above-identified Office Action, the specification was objected to on the basis that the title of the invention was allegedly not descriptive. Applicants' have amended the title of the invention, herein, in order to further prosecution of the application.

In item 3 of the Office Action, claims 1 - 3 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 5,272,704 to Tong et al ("TONG") in view of U. S. Patent No. 5,596,712 to Tsuyama et al ("TSUYAMA").

Applicants respectfully traverse the above rejections.

More particularly, Applicants' claimed invention relates to a method and system using two processors, where, **in response to a fault event, a user predetermines a fault hypothesis, which** user determined fault hypotheses is **automatically** verified. To further emphasize this process, Applicants have amended claim 1 to recite, among other limitations:

upon occurrence of a fault, determining, by a user of
the data processing system, an existence of a fault
hypothesis;

accessing, through the second processor for hypothesis
processing, results of a calculation of the
installation and process states and accessing a
checklist of the knowledge-based models for
automatically verifying the fault hypothesis
determined to exist by the user in the determining
step on a basis of conditions associated with
checklist items in the checklist;   [emphasis added by
Applicants]

Similarly, Applicants' independent claim 2 has been amended to

recite, among other limitations:

a data processing system processing knowledge-based
models for the fault cause analysis and physical
models of technical installation functions and
processes which can be carried out by the technical
installation, said data processing system containing:

. . .

an input/output device connected to said second
processor for hypothesis processing, said
input/output device being used as an interface by
the user to determine the existence of a fault
hypothesis in response to the fault event; and

said second processor being configured to process
and verify the fault hypothesis determined by the
user.   [emphasis added by Applicants]

The amendments to Applicants' claims are supported by the

specification of the instant application. For example, that

the user predetermines a fault hypothesis in response to fault

event, is supported by the specification of the instant

application, including the preamble of originally filed claim

2, as well as, for example, page 5 of the instant application,

lines 2 - 5, which state:

> The method and the system are suitable for assisting
> **in the search for fault causes** <u>when fault events occur</u>
> in industrial installations.   [emphasis added by
> Applicants]

See also, page 11 of the instant application, lines 18 - 26,

which state:

> FIG. 6 shows, by way of example, **how the system
> <u>presents a user</u> with the fault hypothesis "power
> supply too high".** A description of the fault
> hypothesis in this case **explains the relationship
> between <u>the fault</u> and the possible cause. A
> localization process indicates the possible fault
> location;** in the example, this is the reactor XY. The
> hypothesis is verified by processing a verification
> checklist. The **tests** "temperature measurement fault"
> and "leakage to the cooling casing" may be verified
> automatically by a physical model. A fault tree
> reference allows access to an associated fault tree
> for deeper diagnosis relating to the diagnosis
> criterion "incorrect operating instructions".

The above paragraph is describing the determination of an

actual fault event (i.e., which is localized by a localization

process and measured by tests) and <u>verification</u> of the user

determined fault hypothesis **by taking post-fault event**

measurements.

Further, the specification of the instant application makes it

clear, that the <u>user</u> determines <u>a fault hypothesis</u> to be

verified automatically by the system. See, for example, page

4 of the instant application, lines 14 - 19, which state:

> A <u>user</u> of the data processing system <u>determines an</u>
> <u>existence of a fault hypothesis</u>. The **second unit is**
> **used for** accessing results of a calculation of the
> installation and process states and for accessing a
> checklist of the knowledge-based models for
> automatically verifying <u>the</u> fault hypothesis on a
> basis of conditions associated with checklist items in
> the checklist. [emphasis added by Applicants]

In support of the amended claims, see also, page 8 of the

instant application, lines 15 - 20, which state:

> The input/output device 10 contains a model browser
> 11, by which <u>a fault analyst</u> can process knowledge-
> based models 33 which are based on fault trees and are
> referred to as root cause analysis (RCA) models. In
> particular, this allows <u>a fault hypothesis to be</u>
> <u>predetermined, which can be</u> <u>verified automatically</u> by
> the system. [emphasis added by Applicants]

The amended claims are even further supported by, for example,

page 9, line 11 - page 10, line 4, which states:

> FIG. 2 shows the method for automatic processing of
> fault hypotheses with the aid of the physical models
> that are illustrated in general form in FIG. 1 and in
> the form of an example in FIG. 3. The <u>fault analyst</u>
> first <u>navigates to a fault hypothesis</u> in order to
> start the method. In method step 100, the hypothesis
> processor 22 loads the calculation results 32 <u>which</u>
> <u>are required for verification of the hypothesis</u>. In
> subsequent step 200, the hypothesis processor 22 also
> loads the checklist for the relevant hypothesis from
> the knowledge-based models 33. FIG. 6 shows one
> example of a checklist such as this. In step 300, the
> hypothesis processor 22 compares the calculation
> results with the checklist items from the checklist.
> The checklist items for which models are stored are in
> this case evaluated automatically. Each checklist item

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> contains a condition for verification of the
> hypothesis. **In step 400, the hypothesis processor 22
> identifies whether the checklist item does or does not
> satisfy the condition.** As an example, FIG. 7 shows how
> a checklist is output after processing. [emphasis
> added by Applicants]

As such, the specification of the instant application

supports, among other things, **in order to identify a fault**

event that has occurred, a user determines a fault hypothesis

(i.e., "The fault analyst first navigates to a fault

hypothesis . . .") that can be **verified automatically** by the

system.

The **TONG** and **TSUYAMA** references, cited in combination in the

Office Action against Applicants claims, **both** fail to teach or

suggest, among other limitations of Applicants' claims,

automatic verification, by a data processing system, of a

fault hypothesis determined by a user in response to a fault

event.

More particularly, the **TONG** reference relates to a method and

apparatus for generation of multi-branched diagnostic trees,

which is generally practiced on model-based diagnostic

systems. Among other limitations of Applicants' claims, **TONG**

does not teach or suggest **automatic verification, by a data**

processing system, of a fault hypothesis determined by a user

in response to a fault event.

Further, the **TSUYAMA** reference discloses a method and system

for diagnosis and analysis of products troubles. In **TSUYAMA**, a

fault tree is created and stored which represents causal

relations between faults and causes thereof, based on

information of past faults and information concerning the

structure and characteristics of the product. Then, in

TSUYAMA, new information about product faults are input to the

computer. Then, in **TSUYAMA**, the fault tree is searched

determine the cause of the fault and information is generated

and outputted concerning an adjustment or repair of the

product suffering from the fault based on the determined cause

of the fault as well as the information concerning the

structure and the characteristics of the product.

Additionally, in **TSUYAMA**, information concerning the timing of

the occurrence of the fault, symptoms appearing in the fault,

the cause of the fault and the adjustment and repair data are

supplied to a host computer through a data collecting station

to thereby construct a database for the fault information.

As with **TONG**, among other limitations of Applicants' claims,

TSUYAMA does not teach or suggest **automatic verification, by a**

data processing system, of a fault hypothesis determined by a

user in response to a fault event. Rather, col. 2 of **TSUYAMA**,

lines 35 - 40, are cited on page 3 of the Office Action as

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allegedly disclosing **user** determination of a **fault hypothesis**

in **TSUYAMA**. Applicants respectfully disagree. More

particularly, col. 2 of **TSUYAMA**, lines 35 - 40, state:

> generating <u>by the computer</u> the **information** concerning
> adjustment or repair of the product suffering from the
> fault on the basis of the cause of the fault as well
> as the information concerning the structure and the
> characteristics of the product and outputting the
> information concerning the adjustment or the repair;
> [emphasis added by Applicants]

The above paragraph of TSUYAMA, cited in the Office Action,

does not teach or suggest **determination**, <u>**by a user**</u>, of a <u>**fault**</u>

<u>**hypothesis**</u> <u>**in response to a fault event**</u>, as is currently

required by Applicants' claims. Nor does TSUYAMA teach or

suggest, among other limitations of Applicants' claims, that

such a fault hypothesis (i.e., determined **by a user** in

response to a fault event) is **automatically verified** by the

system, as further required by Applicants' claims. Although

TSUYAMA discloses **statistically analyzing data**, TSUYAMA does

disclose using the system resources to **automatically** <u>**verify**</u>

the fault hypothesis <u>determined **by a user**</u> in response to a

fault event.

As such, Applicants' claims are believed to be patentable over

the **TONG** and **TSUYAMA** references, taken alone or in

combination.

It is accordingly believed that none of the references,

whether taken alone or in any combination, teach or suggest

the features of claims 1 and 2.   Claims 1 and 2 are,

therefore, believed to be patentable over the art.   The

dependent claim is believed to be patentable as well because

it is dependent on claim 2.

In view of the foregoing, reconsideration and allowance of
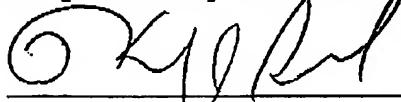
claims 1 - 3 are solicited.

In the event the Examiner should still find any of the claims

to be unpatentable, counsel would appreciate receiving a

telephone call so that, if possible, patentable language can

be worked out.

If an extension of time for this paper is required, petition

for extension is herewith made.

Please charge any fees that might be due with respect to

Sections 1.16 and 1.17 to the Deposit Account of Lerner

Greenberg Stemer LLP, No. 12-1099.

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